Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Original) A method of deriving a function for classifying items of currency, the method comprising processing training data vectors corresponding to features of a plurality of currency items, and deriving a support vector machine classification function involving a plurality of support vectors.

2. (Original) A method as claimed in claim 1 comprising expressing the support vector machine classification function in terms of a subset of the training data vectors, where the subset differs from the support vectors, or where the size of said subset is less than the size of the set of support vectors.

3. (Presently Amended) A method as claimed in ~~any preceding~~ claim 1 wherein the support vector classification function is in the form $g(x) = x^T \sum_{i \in SVS} \alpha_{O,i} d_i x_i + b_0$

4. (Presently Amended) A method as claimed in ~~any preceding~~ claim 1, wherein the support vector machine classification function involves a kernel function corresponding to a mapping of a first space corresponding to the space of input data to a second space, and determining a subset of the training data vectors whose image in the second space is representative of the image of the training data in the second space, wherein the support vector machine classification function is expressed in terms of said subset.

5. (Original) A method as claimed in claim 4 wherein the subset is such that the image of each element of the training data set can be expressed approximately as a linear combination of the

image of elements of the subset.

6. (Original) A method as claimed in claim 5 wherein the subset is such that a measurement of the approximation meets a predetermined condition.

7. (Presently Amended) A method as claimed in ~~any one of claims 4 to 6~~ claim 4 wherein ~~the step of~~ selecting a subset comprises:

(a) deriving a temporary subset;

(b) calculating the value of a fitness function representing the closeness of an approximation of the image of the remaining elements of the data set in terms of the image of the temporary subset;

(c) deriving another temporary subset and repeating ~~step~~ (b); and

(d) comparing the values of the fitness function for each temporary subset, and selecting the temporary subset for which the value of the fitness function indicates the closest approximation.

8. (Presently Amended) A method as claimed in claim 7 in which ~~steps~~ (a) to (d) are repeated to form a sequence of temporary subsets of increasing or decreasing size.

9. (Presently Amended) A method as claimed in claim 7 ~~or claim 8~~ wherein ~~the steps~~ (a) to (d) are repeated until a predetermined condition is met ~~, such as until a fitness function meets a predetermined condition, for example, that the value of the fitness function is less than or equal to a predetermined value, or greater than or equal to a predetermined value, and/or the subset is of a predetermined size, and/or until $K_{s,s}$, as hereinbefore defined, is no longer numerically invertible~~.

10. (Presently Amended) A method as claimed in ~~any one of claims 8 to 12~~ claim 8 wherein the fitness function uses the kernel function

11. (Presently Amended) A method as claimed ~~in any one of claims 4 to 10~~ claim 4 wherein the support vector classification function is in the form $g(\mathbf{x}_i) = \sum_{j=1}^{L} w_{z0,j} k(x_j, x_i) + b_0$

12. (Presently Amended) A method as claimed in ~~any preceding~~ claim 1 comprising deriving a plurality of measurements from at least one currency sensor and a plurality of currency items, and forming the training data set from the measurements.

13. (Presently Amended) A method as claimed in ~~any preceding~~ claim 1 wherein individual elements of the data set comprise a plurality of measurements corresponding to a plurality of characteristics of the sensed items.

14. (Presently Amended) A method as claimed in claim 12 ~~or claim 13~~ wherein the currency sensor comprises [[is]] a document sensor.

15. (Original) A method as claimed in claim 14 wherein the document sensor comprises [[is]] a banknote sensor.

16. (Presently Amended) A method as claimed in claim 12 ~~or claim 13~~ wherein the currency sensor comprises [[is]] a coin sensor.

17. (Presently Amended) A method as claimed in ~~any one of claims 4 to 16~~ claim 4 wherein the kernel function is a Gaussian, polynomial, sigmoid, hyperbolic tangent or spline kernel.

18. (Canceled)

19. (Original) A classification function in the form of a support vector machine involving constants representing at least a kernel function, a weight, and a set of support vectors, or a

subset of support vectors representing data under the image of a mapping corresponding to the kernel function.

20. (Presently Amended) ~~A classification function according to claim 18 or claim 19~~ A method as claimed in claim 22 wherein the classification function is in the form of either

$$g(x) = x^T \sum_{i \in SVS} \alpha_{O,i} d_i x_i \text{ or } g(\mathbf{x}_i) = \sum_{j=1}^{L} w_{z0,j} k(x_j, x_i) + b_0 .$$

21. (Canceled)

22. (Currently amended) A method of classifying a currency item in a currency classifier comprising deriving at least one measurement of the item from at least one currency sensor, classifying the item using a classification function, wherein the classification function comprises a support vector machine involving constants representing at least a kernel function, a weight, and a set of support vectors, or a subset of support vectors representing data under the image of a mapping corresponding to the kernel function ~~according to any one of claims 18 to 20~~.

23. (Original) A validator comprising means for sensing currency items to produce measured values representing characteristics of the items, means storing a function ~~according to any one of claims 18 to 20~~, and means for validating a currency item using the measured values and the function, wherein the function comprises a support vector machine involving constants representing at least a kernel function, a weight, and a set of support vectors, or a subset of support vectors representing data under the image of a mapping corresponding to the kernel function.

24. (New) A validator as claimed in claim 23, wherein the function is in the form of either

$$g(x) = x^T \sum_{i \in SVS} \alpha_{O,i} d_i x_i \text{ or } g(\mathbf{x}_i) = \sum_{j=1}^{L} w_{z0,j} k(x_j, x_i) + b_0 .$$

25. (New) A method as claimed in claim 9 wherein (a) to (d) are repeated until a fitness function meets a predetermined condition, wherein the predetermined condition includes at least one of the following conditions:

(i) a value of the fitness function is less than or equal to a predetermined value;

(ii) a value of the fitness function is greater than or equal to a predetermined value;

(iii) a subset is of a predetermined size; or

(iv) $K_{s,s}$ is no longer numerically invertible.